

Appl. No. 10/590,440
In re ARHAB et al.
Reply to Office Action of Oct. 10, 2008

Amendments to the Drawings:

The attached sheet of drawings includes changes to a single drawing figure. This sheet, which includes the single drawing figure, replaces the original sheet including the single drawing figure. In the single drawing figure, previously presented marking "Fig. 1" has been deleted according to 37 CFR 1.84 (u) (1). No new matter has been added.

Attachment: Replacement Sheet.

REMARKS/ARGUMENTS

The Examiner is thanked for the Official Action dated October 10, 2008. This amendment and request for reconsideration is intended to be fully responsive thereto.

The Examiner indicated that the following references: FR-A-2 825 770; FR-A-2 765 938; FR-A-2 839 128 and US-A-5,975,261 have been referenced in the specification, but have not been listed in the Information Disclosure Statement. Therefore, the supplemental Information Disclosure Statement listing the above references cited in the specification has been submitted herewith.

The drawings were objected to by the Examiner because the marking "Fig. 1" appears in the single drawing figure. The single drawing figure has been amended to delete the previously presented marking "Fig. 1" according to 37 CFR 1.84 (u) (1). No new matter has been added.

Claims 3, 5, 6, 10 and 12 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3 and 10 have been amended, thus overcoming this rejection. No new matter has been added.

Claims 3, 4, 7, 8 and 10 have been amended to correct minor informalities and better conform to current U.S. practice. No new matter has been added. It is respectfully submitted that these amendments are not intended to affect the substantive scope of the claims.

Claims 1, 2, 7, 9 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. (US 2003/0042098) in view of Wörner et al. (US Patent 5,533,602). Applicant respectfully disagrees.

Regarding claim 1: The Examiner alleges that Takeuchi discloses all the limitations of claim 1 except for the limitation requiring the damper plate to be coupled by friction welding to the turbine wheel and turbine hub. The Examiner also cites Wörner that discloses a turbine hub 9 with a radial plate portion 16, which includes an axial projection 20 extending forward and an axial projection 13 extending rearward, a turbine wheel 5 and a lockup clutch 47 having an internal disk support 10 with a flange 15. The radial plate portion 16 of the turbine hub 9 of Wörner is coupled to the flange 14 of the outer shell 8 of the turbine wheel 5 on one side thereof and to the flange 15 of the disk support 10 of the lockup clutch 47 on the other side thereof by friction welding through the axial projections 13 and 20 of the turbine hub 9. Thus, Wörner fails to disclose the damper plate frictionally welded to the turbine wheel 5. The Examiner further alleges that at the time of the invention, it would have been obvious to a person of ordinary skill in this art to connect the turbine wheel 20, the damper plate 32 and the turbine hub 22 of Takeuchi together by friction welding as taught by Wörner "since using the known alternative connection would have yielded predictable

First, the Applicant recognizes that the friction welding is well known in the art. In fact, the present application itself discloses that “friction welding, is often the preferred fastening method for coupling the turbine wheel, turbine hub and damper plate” (see page 4, lines 8-10). However, claim 1 recite not just the outer shell of the turbine wheel and the hub welded together through the damper plate. Contrary to Takeuchi and Wörner, claim 1 clearly recites the hydrokinetic coupling apparatus wherein the damper plate comprises at its inner radial end a flange portion axially extending toward the turbine wheel and non-rotatably coupled thereto by friction welding. Contrary to the present invention, the radial plate portion 16 of the turbine hub 9 of Wörner includes the axial projection 13 connecting the turbine hub 9 to the outer shell 8 of the turbine wheel 5 by friction welding, not the damper plate as recited in claim 1. In other words, none of the references cited by the Examiner teaches the damper plate comprising the flange portion axially extending toward the turbine wheel and non-rotatably coupled thereto by friction welding. Accordingly, even if the combination of and modification of Takeuchi and Wörner suggested by the Examiner could be made, the resulting hydrokinetic coupling apparatus still would lack the damper plate disposed between the turbine wheel and the turbine hub and comprising the flange portion axially extending toward the turbine wheel and non-rotatably coupled thereto by friction welding.

Second, as stated in the Supreme Court decision of *KSR Int’l Co. v. Teleflex Inc.*: “

patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." (emphasis added). *KSR v. Teflex*, 550 U.S. ____, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007). The examiner fails to explain the reasoning that leads to a legal conclusion of obviousness when rejecting claims on that ground. Clearly, the prior art provides no logical reason, suggestion or motivation to replace the single rivet o35 of Takeuchi with two friction welds of Wörner. In fact, the suggested combination of Takeuchi and Wörner would increase the complexity and cost of the torque converter of Takeuchi.

Third, those skilled in the art would realize that the rivet o35 of Takeuchi cannot be simply replaced with the friction welding of Wörner, as one or more connecting elements would need to be provided with one or more axially extending flanges similar to the axial projections 13 and 20 of Wörner. In other words, the suggested combination of Takeuchi and Wörner would require a substantial reconstruction and redesign of the elements shown in the primary reference (see MPEP 2143.01.VI).

Fourth, if one of ordinary skill in this art connects the turbine wheel 20, the damper plate 32 and the turbine hub 22 of Takeuchi together by friction welding as taught by Wörner, he/she would place the turbine hub 22 between the turbine wheel 20 and the damper plate 32, and provide the turbine hub 22 with opposite axial projections enabling the friction welding of the above components together, as taught by Wörner, because none of the references cited by the Examiner teaches the damper plate comprising the flange portion axially extending toward the turbine wheel and non-rotatably coupled thereto by friction welding.

Fifth, as further disclosed in the present application, “with welding it is also necessary that the weld bands be accessible, in particular in order to enable operations of control and cleaning of the weld bands to be carried out. Nevertheless, in currently known apparatus designs, the turbine wheel, turbine hub and damper plate do not enable operations of these kinds to be easily performed, and therefore do not give any guarantee as to the quality and reliability of the welded joints.” (See page 4, lines 11-17). The advantage of the structure of the hydrokinetic coupling apparatus according to the present invention (i.e., the damper plate disposed between the turbine wheel and the turbine hub) is the larger space (access) around the welding joints for controlling and cleaning of the joints. As clearly illustrated, the available space to the welding joint in the hydrokinetic coupling apparatus according to the present invention is substantially larger compared to the hydrokinetic coupling apparatus of Wörner. This is the solution of the problem to be solved by the present invention.

Consequently, the rejection of claims 1, 2, 7, 9 and 14 under 35 U.S.C. 103(a) over

Takeuchi and Wörner is improper.

Regarding claim 2: in addition to the arguments regarding the patentability of claim 1, the prior art fails to disclose the mean diameters of the annular contact faces, namely the front contact face (90) and rear contact face (98), of the flange portion (86) substantially equal to each other. Wörner clearly discloses that an axial projection 20 originates from the face 19 in the direction of the axis of rotation 12--12 of the converter has an outside diameter 21 which is smaller than the outside diameter 22 of the flange 16. In this manner, the projection 20, which is connected with the flange 15 of the disk support 10 by means of friction welding, is offset radially toward the inside with respect to the projection 13 (see col. 5, lines 20-28 of Wörner). In other words, the mean diameters of the annular contact faces of the axial projections (13, 20) of the flange 16 are not equal to each other. Accordingly, the rejection of claim 2 is improper.

The Examiner further noted that claims 4, 8, 11 and 13 were objected to as being dependent upon the rejected base claim 1, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims. As it was argued above, claim 1 defines the invention over Takeuchi and Wörner. Therefore, claims 4, 8, 11 and 13 define the present invention over the prior art and are in condition for allowance.

Claims 3, 5, 6, 10 and 12 were indicated as allowable if amended to overcome the rejection under 35 U.S.C. 112, second paragraph, and rewritten in independent form including all the limitation of the base claim and any intervening claims. As noted above, claims 3 and

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10 have been amended to overcome the rejection under 35 U.S.C. 112, second paragraph. As it was argued above, claim 1 defines the invention over Takeuchi and Wörner. Therefore, claims 3, 5, 6, 10 and 12 define the present invention over the prior art and are in condition for allowance.

It is respectfully submitted that claims 1-14 define the invention over the prior art of record and are in condition for allowance, and notice to that effect is earnestly solicited. Should the Examiner believe further discussion regarding the above claim language would expedite prosecution they are invited to contact the undersigned at the number listed below.

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